

Rowdy Creek Bridge
Spanning Rowdy Creek at Fred Haight Drive
Smith River
Del Norte County
California

HAER No. CA-68

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CAL,
8-SMIRI,
1-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
Western Regional Office
National Park Service
U.S. Department of the Interior
San Francisco, California 94102

HISTORIC AMERICAN ENGINEERING RECORD

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Rowdy Creek Bridge

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Location: Spanning Rowdy Creek at Fred Haight Drive, 0.3 miles south of Smith River, Del Norte County, California

UTM: 10.405000.4641575

Quad: Smith River

Dates of Construction: 1913; southerly span replaced in 1932 with two spans

Engineer: Thomas and Post (1913 bridge)

Builder: Unknown

Present Owner: County of Del Norte, California (replacement bridge)

Present Use: Bridge demolished in 1989; replaced in 1989

Significance: At the time the bridge was demolished in 1989, the north span that remained from the original 1913 bridge represented the only known example of a reinforced concrete girder type bridge designed by William M. Thomas of the firm Thomas and Post. Thomas was an engineer of considerable renown in California during the early 1900s. His fame was primarily due to his invention of the "Thomas Arch," a unique three-hinged concrete arch bridge.

Report prepared by: David Rabinowitz
Assistant Engineer
Engineering Division
Community Development Department
County of Del Norte
700 5th Avenue
Crescent City, California 95531

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The historic Rowdy Creek Bridge, prior to its replacement in 1989, was a three-span reinforced concrete girder bridge. the superstructure was supported on concrete piers and wingwalls which, in turn, were supported on driven redwood piles. It was originally constructed by Del Norte County in 1913 with two 52' 3" long spans.

The southerly span collapsed into the creek in March 1932, when high water undermined the southerly abutment. By then, the bridge carried the California State Highway. The Division of Highways immediately replaced the lost span with two 45' long simple spans. The railing and the exterior girder faces of the new spans were constructed to exactly match the original span. However, the interior girders, diaphragms and deck slabs did not match. The new girders were rectangular, while the original had angular bulbs at the bottom. The new diaphragms were nearly as deep as the girders, while the originals were only the depth of the vault in the deck soffit. The new deck had a flat soffit, which the original was vaulted.

Aside from the 1932 construction of the two southerly spans, there were only two notable modifications to the bridge. These occurred after 1932. The remaining footing of the original pier was underpinned with a new concrete shaft. This was necessary as a result of the degradation (lowering) of the creek channel which was undermining the pier. The other modification was to the riding surface of the bridge deck. The original bridge provided a 20' roadway for vehicles and a 4' sidewalk. Sometime after 1952 and prior to 1962, when a new state highway was built and the bridge reverted back to the county, one foot of fill and pavement was placed on the bridge, so that a 24' wide roadway with no sidewalk was provided.

Prior to its demolition and replacement in 1989, the bridge was in a state of considerable debilitation. Concrete in the original 1913 section exhibited many spalls exposing reinforcement steel. The ongoing degradation of the stream bed, of about 10 feet since 1913, was threatening to undermine the bridge's foundations. The piling supporting the south abutment apparently rotted off above ground level in about 1979. This allowed the southerly abutment to settle about one foot. The filling of the bridge deck to widen the roadway allowed vehicle wheels to ride on the 4" thick sidewalk slab which resulted in the cracking of the sidewalk.

The primary historical significance of the bridge is that the northerly span of original 1913 bridge which remained after 1932 represented the only known example of a reinforced concrete girder bridge designed by William H. Thomas of the firm of Thomas and Post.

William M. Thomas was an well-known engineer in California during the early 1900s. He, along with John Leonard and Edward Mayberry were the three engineers who contributed the most to the development and promotion of reinforced concrete bridges for California highways in the early 1900s. His fame was primarily due to his invention of the "Thomas Arch," a unique three-hinged concrete arch type of bridge that was one of the sixteen patents granted to Thomas pertaining to reinforced concrete structures. The "Thomas Arch" bridges were ingeniously designed to allow the arches to be recast in half-length segments flat on their sides on the ground near the bridge site and then later hoisted into place to rest on hinge sockets built into the abutments and butted together at the crown of the arch through a third hinge. Many such bridges were constructed in California and elsewhere from designs made by the firm of Thomas and Post during the period from 1909 to 1917.

The Rowdy Creek Bridge was not a "Thomas Arch" bridge. It was, however, a fairly routine concrete girder bridge, a type that was, and still is, frequently employed by many designers for short spans. It is considered to be only a minor example of Thomas' work. At the time the Rowdy Creek Bridge was replaced, there were approximately 230 remaining California highway bridges built between 1900 and 1919 with concrete girders in one or more of their spans. However, the north span of the Rowdy Creek Bridge, the remaining span of the Rowdy Creek Bridge, the remaining span of the bridge built in 1913, was the only known example of a concrete girder bridge designed by William M. Thomas.

The above documentation is based on information contained in, and excerpts from:

Del Norte County
Rowdy Creek Bridge
Environmental Assessment / Initial Study and Section 4(f) Involvement
Prepared by Donald W. Alden, Consultant, 1988